

Stanley Grove Primary and Nursery School

Scheme of work for Mathematics

Written and revised by the teaching staff Stanley Grove School. This revision Sept 2021 for new EYFS curriculum.



We are trusted with Parents' most precious possessions... ...
treasure them.

What our children say about Mathematics.

"Maths is good. I like playing with the number pegs." (EYFS)

"It's fun. I like doing problems. I love doing adding because we get to do hard ones." (1)

"My favourite lesson is maths. I love fractions." (2)

"I like maths - it's the best lesson." (3)

"I think the challenge is just right. I love all of it - it's one of my favourites." (4)

"I like maths because it can be challenging." (5)

"Some things in maths are really challenging, most are about right. I enjoy the extension problems in problem solving lessons. Maths is one of my favourites." (6)

Essentials for this subject:

- ✓ Our children leave Stanley Grove School as numerate children equipped with the ability to persevere, take on challenges and communicate mathematically.
- ✓ Pupils are prepared for real life and are used to using mathematics across a range of situations and subjects.
- ✓ Daily mental practise allows pupils to become fluent in the fundamentals of mathematics.
- ✓ Children are regularly presented with problem solving activities which challenge their thinking and allow them to use and apply their skills.
- ✓ The children use and hear accurate and appropriate mathematical language in a range of situations.

A selection of the things we do in Maths connected to Outdoor Learning at Stanley Grove:

Y1: shape hunt and chalk number formations.

Y2: co-ordinates in a grid, directions and turns.

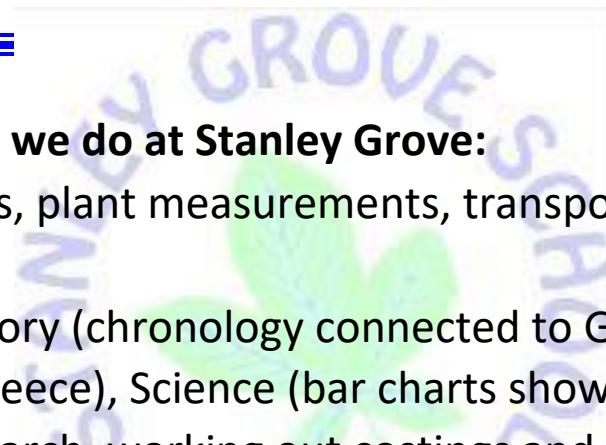
Y3: angles, position and direction, capacity.

Y4: measuring distances with the trundle wheel, finding perimeter of playground, outdoor problemsolving booklet.

Y5: accurate measuring to find lengths and converting measures.

Y6: measuring area of playground and field, collating RSPB Big Bird Watch data.

Some of the cross-curricular Maths we do at Stanley Grove:

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- Y1: Science (weather measurements, plant measurements, transport bar charts showing how we get to school).
 - Y2: Activ8 (maths linked to PE), History (chronology connected to Great Fire of London).
 - Y3: History (timelines for ancient Greece), Science (bar charts showing size of shadows).
 - Y4: Enterprise: surveys/market research, working out costings and profits, History: Roman numerals, Geography: line graphs showing population change over time, Science: charts connected to evaporation rates.
 - Y5: History: Mayan maths using hieroglyphs for addition and subtraction, Geography: line graphs comparing education attainment in UK to other countries, Geography/Science: line graphs showing deforestation rates.
 - Y6: History: creating timelines for Iron Age to Bronze Age and working out time differences, Geography: analysing monthly rainfall and temperature in different South American countries and using to find averages, Science: constructing pie charts to show eye colour and analysing data.

Mathematics

Year 1

Mental Mathematics Expectations

| Taken from Big Maths, leading to secure targeting for all children. The Calculate section overlaps into written methods and will also overlap with the scheme of work. | | | |
|--|---|---|--|
| COUNTING | LEARN ITS | IT'S NOTHING NEW | CALCULATE |
| <p>The Saying numbers Progress Drive:</p> <p>Step 1: I can count to ten Step 2: I can count to 20. Step 3: I can count from 60 to 69. Step 4: I can count to 100. Step 5: I can count past 100.</p> <p>The Reading Numbers Progress Drive:</p> <p>Step 1: I can read 1d numbers Step 2: I can read the numbers 11-20 Step 3: I can read 2d multiples of ten Step 4: I can read 2d numbers Step 5: I can read 3d multiples of 100 Step 6: I can read 3d numbers.</p> <p>The Squiggleworth Progress Drive:</p> <p>Step 1: I can partition a 2d number The CORE Numbers Progress Drive:</p> <p>Step 1: I can understand numbers to 10 Step 2: I can understand numbers to 20 Step 3: I can understand 2d numbers</p> <p>The Counting Skills Progress Drive:</p> <p>Step 1: I know when to count</p> | <p>The Actual Counting Progress Drive:</p> <p>Step 1: I can count three objects</p> <p>Addition Learn Its</p> <p>Step 1: 1+1, 2+2 Step 2: 3+3, 4+4, 5+5 Step 3: 1+2, 2+3 Step 4: 2+8, 3+7, 4+6 Step 5: 4+2, 5+2, 6+2, 7+2, 9+2, 4+3, 5+3, 6+3 Step 6: 6+6, 7+7, 8+8, 9+9</p> <p>Multiplication Learn Its:</p> <p>Step 3: Counting multiples of ten Step 4: Counting multiples of five Step 6: Counting in multiples of two</p> <p>Pim the Alien</p> <p>Step 1: I can swap objects</p> | <p>Adding with Pim:</p> <p>Step 1: I can add tens</p> <p>Doubling with Pim (Without crossing 10)</p> <p>Step 1: I can double 1d numbers</p> <p>Doubling with Pim (Crossing 10)</p> <p>Step 1: I can double 1d numbers</p> <p>Jigsaw numbers</p> <p>Step 1: I can find the missing piece to 10</p> <p>The Fact Families Step 1: I know the fact families for 1d + 1d facts</p> <p>The Addition Progress Drive</p> <p>Step 1: I know <i>when</i> to add some more Step 2: I know to find the total Step 3: I add the right amount Step 4: I add the right amount and can count how many altogether Step 5: I can add numbers of objects to ten Step 6: I can <i>read</i> a number sentence Step 7: I can <i>arrange</i> a number sentence</p> | <p>The Subtraction Progress Drive</p> <p>Step 8: I can <i>solve</i> a number sentence Step 9: I can <i>solve</i> addition on a number line Step 10: I can add 1 to a number up to 20</p> <p>Step 1: I know when to take some away Step 2: I know how to take some away, then count how many are left Step 3: I take away the right amount Step 4: I take away the right amount and count how many are left Step 5: I can take away numbers of objects to 10 Step 6: I can <i>read</i> a subtraction number sentence Step 7: I can <i>arrange</i> a subtraction number sentence Step 8: I can <i>solve</i> a number subtraction sentence Step 9: I can <i>solve</i> subtraction on a number</p> |

Step 2: I can count four objects
Step 3: I can count five objects
Step 4: I can count six objects
Step 5: I can count ten objects
Step 6: I can count 20 objects

[The Counting On Progress Drive:](#)

Step 1: I can count on and count back 1
Step 2: I can count on and count back 2
Step 3: I can count on and count back 3
Step 4: I can count on and count back 4
Step 5: I can count on and count back 5

[The Counting Multiples Progress Drive:](#)

Step 1: I can count in tens
Step 2: I can count in five
Step 3: I can count in twos

[The Count Fourways Progress Drive:](#)

Step 1: I can count in twos

[The Counting Along Progress Drive:](#)

Step 1: I can count along when the numbers are written in



line
Step 10: I can take 1 from a number to 20

Step 11: I can take 2 or 3 from a number to 20

[The Multiplication Progress Drive](#)

Step 1: I can set out groups of toys when I play

Step 2: I can find the total amount of toys
Step 3: I can set out groups of blocks when I play

Step 4: I can find the total amount of blocks

Step 5: I can draw out groups of dots
Step 6: I can find the total amount of dots

[The Division Progress Drive](#)

Step 1: I can give out objects fairly

Step 2: I can count how many each person was given

Step 3: I can share an even number of objects between two people

Step 4: I can halve an even number of objects

Step 5: I can share 6, 9, 12 or 15 objects between 3 people

Step 6: I can share 6, 9, 12 or 15 objects into 3

Step 7: I can share 8, 12, 16 or 20 objects between 4 people

Step 8: I can share 8, 12, 16 or 20 objects into 4

NUMBER

| NUMBER AND PLACE VALUE | Reception Statements | Statutory Requirements YEAR ONE | Statutory Requirements Year Two |
|------------------------|---|--|--|
| | <ul style="list-style-type: none"> • Count objects, actions and sounds. • Subitise. • Link the number symbol (numeral) with its cardinal number value. • Count beyond ten. • Compare numbers. • Understand the 'one more than/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10. • Automatically recall number bonds for numbers 0–5 and some to 10. <p>Vocab children use: More than, less than, fewer, the same as, equal to, patterns</p> <p>Vocab teacher may use: Number, zero, one, two, three..., ten, twenty..., how many...? count, count (up) to count on (from, to) count back (from, to) count in ones, more, less, how many times? pattern, pair, guess how many, estimate nearly, close to, about the same as, start from/at/with, continue, the same number as, as many as , Of two objects/amounts: greater, more, larger, bigger, less, fewer, smaller</p> <p>Prob solving: What could we try next? How did you work it out? Tell, read, write, trace, copy, finish, colour, shade, work out, best way, another way.</p> | <p>a) count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</p> <p>b) count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p> <p>c) given a number, identify one more and one less</p> <p>d) identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</p> <p>e) read and write numbers from 1 to 20 in numerals and words</p> <p>Year One vocab as Reception PLUS: COUNTING: to twenty and beyond zero, ten, twenty... one hundred, none, count (up) to count on (from, to) count back (from, to) count in twos... tens... more, less, many, few odd, even every other how many times? pattern, pair PLACE VALUE AND ORDERING: first, second, third... tenth, eleventh... twentieth last, last but one before, after next between, half-way between above, below, ten more, ten less. Of three or more objects/amounts: greatest, most, biggest, largest least, fewest, smallest, ESTIMATING: guess how many, estimate nearly, roughly, close to about the same as just over, just under, too many, too few, enough, not enough MAKING DECISIONS AND REASONING: pattern, puzzle, answer, right, wrong, what could we try next? How did you work it out? count out, share out, left, left over, number sentence, sign, operation. Problem solving: Explain, describe, imagine, arrange, rearrange, complete, check.</p> | <p>a) count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</p> <p>b) recognise the place value of each digit in a two-digit or/and 3-digit number (hundreds, tens, ones)</p> <p>c) identify, represent and estimate numbers using different representations, including the number line</p> <p>d) compare and order numbers from 0 up to 100; use <, > and = signs</p> <p>e) read and write numbers to at least 100 in numerals and in words use place value and number facts to solve problems.</p> |

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| ADDITION AND SUBTRACTION | <p>Vocab children should use: How many more...?</p> <p>Vocab teacher may use: add, take, equals, more, altogether, one more, take (away), how many are left? one less</p> <p>Reception vocab linked to money: Money, coin, penny, pence, pound, price, cost, buy, sell, spend, pay, change costs more or less, costs same as, how much/many?</p> | <p>a) read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</p> <p>b) represent and use number bonds and related subtraction facts within 20</p> <p>c) add and subtract one-digit and two-digit numbers to 20, including zero</p> <p>d) solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = - 9$.</p> <p>Year One vocab as Reception PLUS: +, plus make, sum, total score, near double, two more... ten more how many more to make...? how many more is... than...? how much more is...? – subtract, minus leave, how many have gone? two less, ten less... how many fewer is... than...? how much less is...? difference between half, halve = equals, sign, is the same as</p> | <p>a) solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods <p>b) recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>c) add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot <p>d) recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> |
| MULTIPLICATION AND DIVISION | <p>Vocab children will use: Double, share, equal/equally</p> <p>Vocab teacher may use: Reception vocab linked to mult and div: Compare, double, half, halve, count out, share out, left, left over</p> | <p>a) solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</p> <p>Year One vocab as Reception PLUS: Split, times, divide.</p> | <p>a) recall and use multiplication and division facts for the 2, 5, 10 and 3 multiplication tables, including recognising odd and even numbers</p> <p>b) calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs</p> <p>c) show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p> <p>d) solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including</p> |

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| | | | problems in contexts e) write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods |
| FRACTIONS | <p>Vocab children should use: share</p> <p>Vocab teacher may use: Reception vocab linked to fractions: Compare, double, half, halve, count out, share out</p> | <p>a) recognise, find and name a half as one of two equal parts of an object, shape or quantity b) recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</p> <p>From Year 2 moved to Y1 curric:</p> <ul style="list-style-type: none"> • Recognise $\frac{1}{3}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{2}{4}$ of a shape. • write simple fractions for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ <p>Year One vocab as Reception PLUS: Quarter, whole, three quarters, two quarters.</p> | <p>a) recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity b) write simple fractions for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$</p> <p>NB: Red indicates these statements will be introduced in Y1 and recapped in Y2.</p> |



MEASUREMENT

| | Reception Statements | Statutory Requirements YEAR ONE | Statutory Requirements Year Two |
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| MEASUREMENT | <ul style="list-style-type: none"> Compare length, weight and capacity. <p>Vocab children should use: Heavier than, lighter than, more than, less than, longer, shorter, taller, full, empty, half full</p> <p>Vocab teacher may use: Reception vocab linked to measure: Measure, size, compare, estimate, enough, too much/too little, too many/few, just under/over, LENGTH: length, width, height, long, short, tall, high, low, wide, narrow, deep, shallow, thick, thin, longer, shorter, higher, taller, longest, shortest, tallest, highest, near, far. MASS: weigh, weighs, balances, heavy/light, heavier/lighter, heaviest/lightest, scales, weight.</p> | <p>a) compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] mass/weight [for example, heavy/light, heavier than, lighter than] capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] time [for example, quicker, slower, earlier, later] <p>b) Measure and begin to record the following:</p> <ul style="list-style-type: none"> lengths and heights mass/weight capacity and volume time (hours, minutes, seconds) <p>c) Recognise and know the value of different denominations of coins and notes</p> | <ul style="list-style-type: none"> choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$ recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations of coins that equal the same amounts of money solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change compare and sequence intervals of time tell and write the time to five minutes, including quarter |

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| <p>Vocab teacher may use: CAPACITY: full, half, full, empty, container. TIME: time, days of week, day, week, birthday, morning, afternoon, evening, night, bedtime, dinnertime, playtime, today, tomorrow, yesterday, before, after, next, last, now, soon, quickest, quickly, slow, slowly, slowest, old, older, oldest, new, newer, newest, takes longer, takes less time, hour, o'clock, watch</p> | <p>d) sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] e) recognise and use language relating to dates, including days of the week, weeks, months & years f) tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p> <p>Year One vocab as Reception PLUS: Guess, roughlymetre, ruler, metre stick, half past, seconds, one pence, two pence, five pence, fifty pence, one pound, two pounds, five pounds, ten pounds, litre, kilogram, Seasons, spring, summer, autumn, winter, weekend, month, year, midnight, fast, faster fastest, how long ago? how long will it be to...? how long will it take to...? how often? always, never, often sometimes, usually once, twice.</p> | <p>past/to the hour and draw the hands on a clock face to show these times h) know the number of minutes in an hour and the number of hours in a day.</p> |
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GEOMETRY

| | Reception Statements | Statutory Requirements YEAR ONE | Statutory Requirements Year Two |
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PROPERTIES OF SHAPES

- Select, rotate and manipulate shapes to develop spatial reasoning skills.
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- Continue, copy and create repeating patterns.

Vocab children should use:

2D shapes, 3D shapes, triangle, square, rectangle, circle, pentagon, hexagon

Vocab teacher may use:

Pattern, flat, curved, straight, round, hollow, solid corner, face, side, edge, end, sort, make, build, draw

3D SHAPES: cube sphere cone cuboid

2D SHAPES: circle triangle square rectangle star

PATTERNS AND SYMMETRY size, bigger, larger, smaller, symmetrical, pattern repeating pattern, match.

a) Recognise and name common 2-D and 3-D shapes, including:

- 2-D shapes [for example, rectangles (including squares), circles and triangles]
- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].

b) identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line

Year one vocab as Reception PLUS:
Hollow, pyramid, symmetrical, point, pointed, cylinder, sphere.

a) identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line

b) identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces

c) identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]

d) compare and sort common 2-D and 3-D shapes and everyday objects.

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| POSITION AND DIRECTION | <p>Vocab teacher may use:</p> <p>over, under above, below top, bottom, side, on, in outside, inside around, in front, behind front, back before, after beside, next to opposite apart between middle, edge, corner, direction, left, right, up, down, forwards, backwards, sideways across, close, far, near, along, through, to, from, towards, away from, movement, slide, roll, turn, stretch, bend.</p> | <p>a) describe position, direction and movement, including whole, half, quarter and three-quarter turns</p> <p>Year One vocab as Reception PLUS: Position, underneath, centre, journey, whole turn, half turn, quarter turn, three-quarter turn.</p> | <p>a) order and arrange combinations of mathematical objects in patterns and sequences b) use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)</p> |
| STATISTICS | <p>Vocab teacher may use:</p> <p>Tick, cross, draw a line between, fill in, count, sort, group, list.</p> | <p>Try to fit this in if possible (Y2 statement): <i>interpret simple pictograms, tally charts, block diagrams and simple tables</i></p> <p>Year One vocab as Reception PLUS: Set, table, chart, bar chart, pictogram, tally, vote, compare.</p> | <p>a) interpret and construct simple pictograms, tally charts, block diagrams and simple tables b) ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity c) ask and answer questions about totalling and comparing categorical data.</p> |



Mathematics

Year 2

Mental Mathematics Expectations

Taken from Big Maths, leading to secure targeting for all children. The Calculate section overlaps into written methods and will also overlap with the scheme of work.

| COUNTING | LEARN ITS | IT'S NOTHING NEW | CALCULATE |
|---|---|---|---|
| <p>The Saying numbers Progress Drive: Step 4: I can count to 100. Step 5: I can count past 100.</p> <p>The Reading Numbers Progress Drive: Step 4: I can read 2d numbers Step 5: I can read 3d multiples of 100 Step 6: I can read 3d numbers.</p> <p>The Squiggleworth Progress Drive: Step 2: I can partition a 3d number</p> <p>The CORE Numbers Progress Drive: Step 3: I can understand 2d numbers Step 4: I can understand 3d numbers</p> <p>The Counting On Progress Drive: Step 5: I can count on and count back 5</p> <p>The Counting Multiples Progress Drive: Step 1: I can count in tens Step 2: I can count in five Step 3: I can count in twos Step 4: I can count in threes</p> <p>The Count Fourways Progress Drive: Step 1: I can count in twos Step 2: I can count in 20s</p> <p>The Counting Along Progress Drive: Step 2: I can count along even when the numbers aren't written in</p> | <p>Addition Learn Its Step 7: 3+8, 3+9, 4+7, 4+8, 4+9 Step 8: 4+5, 5+6, 6+7, 7+8, 8+9 Step 9: 5+9, 6+9, 7+9, 5+7, 5+8, 6+8</p> <p>Multiplication Learn Its: Step 7: 10x table Step 8: 5x table Step 9: 2x table Step 10: 3x table</p> | <p>Adding with Pim: Step 2: I can add 100s</p> <p>Doubling with Pim (Without crossing 10) Step 2: I can double 2d multiples of 10</p> <p>Doubling with Pim (Crossing 10) Step 1: I can double 1d numbers Step 2: I can double 2d multiples of 10</p> <p>Teach halving of even numbers to 20 Jigsaw numbers Step 2: I can find the missing piece to the next multiple of ten</p> <p>Multiplying by Ten: Step 1: I can multiply whole numbers by 10</p> <p>Smile Multiplication Step 1: I can multiply multiples of 10</p> <p>Coin Multiplication Step 1: I can complete a 1, 10 card</p> <p>Pom's Words Step 1: I can find multiples</p> <p>The Fact Families Step 1: I know the fact families for 1d + 1d facts Step 2: I can turn 1d+1d facts into multiples of ten Step 3: I know the Fact Family when given a single addition fact</p> | <p>The Addition Progress Drive: Step 11: I can add 2 or 3 to a number up to 20</p> <p>Step 12: I can ass a 1d number to a number to 20 Step 13: I can add 1 to a 2d number</p> <p>Step 14: I can add 10 to a 2d tens number Step 15: I can add 10 to any 2d number</p> <p>Step 16: I can add a 1d number to a 2d tens number Step 17: I can solve 2d + 1d</p> <p>Step 18: I can add a 2d tens number to another one Step 19: I can solve any 1d + 1d in my head</p> <p>Step 20: I can solve any 2d + 1d The Subtraction Progress Drive Step 9: I can solve subtraction on a number line</p> <p>Step 10: I can take 1 from a number to 20 Step 11: I can take 2 or 3 from a number to 20</p> <p>Step 12: I can take a 1d number from a number to 20 Step 13: I can take 10 from a multiple of 10</p> <p>Step 14: I can take 10 from a 2d number Step 15: I can take a multiple of 10 from a multiple of 10</p> <p>Step 16: I can take a 1d number from a</p> |



multiple of 10
Step 17: I can solve $2d - 1d$
Step 18: I can solve *any* $2d - 1d$
[The Multiplication Progress Drive](#)
Step 4: I can find the total amount of blocks
Step 5: I can draw out groups of dots
Step 6: I can find the total amount of dots
Step 7: I can write out repeated addition
Step 8: I can solve repeated addition
Step 9: I can solve $1d \times 1d$
[The Division Progress Drive](#)
Step 9: I can share equally to solve problems
Step 10: I can make groups of 2, 5 or 10
Step 11: I can find how many altogether by counting through each group
Step 12: I can find how many altogether by counting in 2s, 5s or 10s
Step 13: I can arrange a division number sentence
Step 14: I can solve a division number sentence with objects

NUMBER

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| | Statutory Requirements Year One | Statutory Requirements YEAR TWO | Statutory Requirements Year Three |
|--|---------------------------------|---------------------------------|-----------------------------------|

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|------------------------|--|--|--|
| NUMBER AND PLACE VALUE | <ul style="list-style-type: none"> a) count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number b) count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens c) given a number, identify one more and one less d) identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least e) read and write numbers from 1 to 20 in numerals and words | <ul style="list-style-type: none"> a) count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward b) recognise the place value of each digit in a two-digit or/and 3-digit number (hundreds, tens, ones) c) identify, represent and estimate numbers using different representations, including the number line d) compare and order numbers from 0 up to 100; use <, > and = signs e) read and write numbers to at least 100 in numerals and in words f) use place value and number facts to solve problems. <p>Year Two vocab refer to previous years PLUS: Two hundred, one thousand, threes, fives, multiple of, sequence, continue, predict, rule. Hundreds, one/two or three digit number, place, place value, stands for, represents, exchange, twenty-first, twenty-second..., exact, exactly, round, round to nearest ten, number bonds, hundred square, write in figures, recite.</p> <p>Problem solving: calculate, calculation, mental calculation correct, symbol, describe the pattern/rule, find all, find different, investigate, decide, discuss, explain your method, give an example of, label, solve.</p> | <ul style="list-style-type: none"> a) count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number b) recognise the place value of each digit in a three-digit number (hundreds, tens, ones) c) compare and order numbers up to 1000 d) identify, represent and estimate numbers using different representations e) read and write numbers up to 1000 in numerals and in words f) solve number problems and practical problems involving these ideas. g) round any number to the nearest 10 |
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| ADDITION AND SUBTRACTION <ul style="list-style-type: none"> a) read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs b) represent and use number bonds and related subtraction facts within 20 c) add and subtract one-digit and two-digit numbers to 20, including zero d) solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = - 9$. | <p>a) solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods <p>b) recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>c) add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> • a two-digit number and ones • a two-digit number and tens • two two-digit numbers • adding three one-digit numbers <p>d) show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</p> <p>e) recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p>Year Two vocab refer to previous years PLUS: Addition, subtraction, one hundred more/less, tens boundary, opposite operation, missing number, column method.</p> | <p>a) add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction <p>b) estimate the answer to a calculation and use inverse operations to check answers</p> <p>c) solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> |
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| MULTIPLICATION AND DIVISION | <p>a) solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</p> <p>a) recall and use multiplication and division facts for the 2, 5, 10 and 3 multiplication tables, including recognising odd and even numbers</p> <p>b) calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs</p> <p>c) show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p> <p>d) solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts Try to fit in if possible (Y3 statement):</p> | <p>a) recall and use multiplication and division facts for the 4, 6 and 8 multiplication tables, beginning to recognise factor pairs</p> <p>b) write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</p> <p>c) solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</p> |
| | <p>e) write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</p> <p>Year Two vocab refer to previous years PLUS: lots of, groups of, \times, times, multiply, multiplied by multiple of, once, twice, three times... ten times... times as (big, long, wide... and so on) repeated addition array row, column, share equally, one each, two each, three each... group in pairs, threes... tens equal groups of, \div, divide, divided by, divided into.</p> | |

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| <p>FRACTIONS</p> <p>a) recognise, find and name a half as one of two equal parts of an object, shape or quantity b) recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</p> | <p>a) recognise, find, name and write fractions $1/3$, $1/4$, $2/4$ and $3/4$ of a length, shape, set of objects or quantity b) write simple fractions for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $2/4$ and $1/2$</p> <p>Moved from Y3 to Y2:</p> <ul style="list-style-type: none"> • count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions will small denominators • add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$] • compare and order unit fractions, and fractions with the same denominators <p>Year Two vocab refer to previous years PLUS: Part, equal parts, fraction, one whole, unit fraction, compare, order, tenths, denominator, numerator.</p> | <p>a) count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 b) recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions will small denominators c) recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators d) recognise and show, using diagrams, equivalent fractions with small denominators e) add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$] f) compare and order unit fractions, and fractions with the same denominators g) solve problems that involve all of the above h) <i>find the effect of dividing a one- or two-digit number by 10</i></p> <p>NB: Red indicates these statements will be introduced in Y2 and recapped in Y3.</p> |
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MEASUREMENT

| | Statutory Requirements Year One | Statutory Requirements YEAR TWO | Statutory Requirements Year Three |
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| MEASUREMENT | <p>a) compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> • lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] • mass/weight [for example, heavy/light, heavier than, lighter than] • capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] • time [for example, quicker, slower, earlier, later] <p>b) Measure and begin to record the following:</p> <ul style="list-style-type: none"> • lengths and heights • mass/weight • capacity and volume • time (hours, minutes, seconds) <p>c) Recognise and know the value of different denominations of coins and notes</p> <p>d) sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p> <p>e) recognise and use language relating to dates, including days of the week, weeks, months & years</p> <p>f) Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p> | <p>a) choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <p>b) compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and =</p> <p>c) recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p> <p>d) find different combinations of coins that equal the same amounts of money</p> <p>e) solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p> <p>f) compare and sequence intervals of time</p> <p>g) tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times</p> <p>h) know the number of minutes in an hour and the number of hours in a day.</p> <p>Year Two vocab refer to previous years PLUS: Measuring scale, further, furthest, metre (m), centimetre (cm), tape measure, metre stick, kilogram (km), gram (g), half-kilogram (500g), capacity, litre (l), millilitre (ml), half litre (500ml), fortnight, quarter to/past, digital, analogue, timer, greater than, less than, £, p, bought, sold.</p> | <p>a) measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p> <p>b) measure the perimeter of simple 2-D shapes</p> <p>c) add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p>d) tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p> <p>e) estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</p> <p>f) know the number of seconds in a minute and the number of days in each month, year and leap year</p> <p>g) compare durations of events [for example to calculate the time taken by particular events or tasks]</p> <p>i) <i>Convert between different units of measure [for example, kilometre to metre; hour to minute]</i></p> |

GEOMETRY

| | Statutory Requirements Year One | Statutory Requirements YEAR TWO | Statutory Requirements Year Three |
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| PROPERTIES OF SHAPES | <p>b) recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 2-D shapes [for example, rectangles (including squares), circles and triangles] <input type="checkbox"/> 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. <p>b) identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <ul style="list-style-type: none"> <input type="checkbox"/> | <p>a) identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>b) identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>c) identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</p> <p>d) compare and sort common 2-D and 3-D shapes and everyday objects.</p> <p>Year Two vocab refer to previous years PLUS: Surface, circular, triangular, rectangular, pentagon, hexagon, octagon, cone, line of symmetry, fold, mirror line, reflection.</p> | <p>a) draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p> <p>b) recognise angles as a property of shape or a description of a turn</p> <p>c) identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle</p> <p>d) identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p> <p>e) <i>identify acute and obtuse angles</i></p> <p>f) <i>complete a simple symmetric figure with respect to a specific line of symmetry</i></p> |
| POSITION AND DIRECTION | <p>a) describe position, direction and movement, including whole, half, quarter and threequarter turns</p> | <p>a) order and arrange combinations of mathematical objects in patterns and sequences</p> <p>b) use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)</p> <p>Year Two vocab refer to previous years PLUS: Clockwise, anti-clockwise, route, higher, lower, right angle, straight line.</p> | <p>a) <i>describe positions on a 2-D grid as coordinates in the first quadrant</i></p> |

STATISTICS

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| <i>a) interpret simple pictograms, tally charts, block diagrams and simple tables</i> | c) interpret and construct simple pictograms, tally charts, block diagrams and simple tables d) ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity e) ask and answer questions about totalling and comparing categorical data. | a) interpret and present data using bar charts, pictograms and tables b) solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. |
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Year Two vocab refer to previous years PLUS:
Graph, block graph, most popular, most common, least popular, least common, title, label.

Mathematics

Year 3

Mental Mathematics Expectations

Taken from Big Maths, leading to secure targeting for all children. The Calculate section overlaps into written methods and will also overlap with the scheme of work.

| COUNTING | LEARN ITS | IT'S NOTHING NEW | CALCULATE |
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| <p><u>The Reading Numbers Progress Drive:</u></p> <p>Step 4: I can read 2d numbers Step 5: I can read 3d multiples of 100 Step 6: I can read 3d numbers Step 7: I can read 4, digit numbers</p> <p><u>The Squiggleworth Progress Drive:</u></p> <p>Step 2: I can partition a 3d then a 4d number Step 3: I can partition a 1dp number</p> <p><u>The CORE Numbers Progress Drive::</u></p> <p>Step 4: I can understand 3d numbers Step 5: I can understand 4d numbers Step 6: I can understand 1dp numbers</p> <p><u>The Counting Multiples Progress Drive:</u></p> <p>Step 4: I can count in threes Step 5: I can count in fours Step 6: I can count in eights Step 7: I can count in sixes</p> <p><u>The Count Fourways Progress Drive:</u></p> <p>Step 2: I can count in 20s Step 3: I can count in 200s Step 4: I can count in 2000s</p> <p><u>The Counting Along Progress Drive:</u></p> <p>Step 2: I can count along even when the numbers aren't written in</p> | <p><u>Multiplication Learn Its:</u></p> <p>Step 10: 3x table/6x table Step 11: 4x table Step 12: 8x table</p> | <p><u>Adding with Pim:</u></p> <p>Step 3: I can add thousands</p> <p><u>Doubling with Pim (Without crossing 10):</u></p> <p>Step 3: I can double 2d numbers Step 4: I can double 3d multiples of 100</p> <p><u>Doubling with Pim (Crossing 10):</u></p> <p>Step 2: I can double 2d multiples of 10 Step 3: I can double 2d numbers Step 4: I can double 3d multiples of ten</p> <p><u>Halving with Pim:</u></p> <p>Step 1: I can find half of 3, 5, 7, 9 Step 2: I know half of 30,50, 70, 90 Step 3: I know half of 300, 500, 700, 900</p> <p><u>Teach halving of any 2d even number</u></p> <p><u>Jigsaw numbers:</u></p> <p>Step 3: I can find the missing piece to a hundred</p> <p><u>Multiplying by Ten:</u></p> <p>Step 1: I can multiply whole numbers by 10 Step 2: I can multiply whole numbers by 100</p> <p><u>Smile Multiplication:</u></p> <p>Step 1: I can multiply multiples of 10 Step 2: I can write Smile multiplication tables</p> <p><u>Coin Multiplication:</u></p> | <p><u>The Addition Progress Drive:</u></p> <p>Step 21: I can add <i>any</i> d2 tens number to another one digit number</p> <p>Step 22: I can add a 2d tens number to a 2d tens number</p> <p>Step 23: I can add <i>any</i> 2d tens number to a 2d tens number</p> <p>Step 24: I can add a 2d number to a 2d number</p> <p>Step 25: I can solve any 2d+2d</p> <p>Step 26: I can solve 3d+2d</p> <p>Step 27: I can solve <i>any</i> 3d+2d</p> <p>Step 28: I can solve 3d+3d</p> <p><u>The Subtraction Progress Drive</u></p> <p>Step 16: I can take a 1d number from a multiple of 10</p> <p>Step 17: I can solve 2d-1d</p> <p>Step 18: I can solve <i>any</i> 2d-1d</p> <p>Step 19: I can solve <i>any</i> 3d-1d</p> <p>Step 20: I can spot the next multiple of ten</p> <p>Step 21: I can <i>count</i> to the next multiple of ten</p> <p>Step 22: I <i>know</i> the gap to the next multiple of ten</p> |

Step 3: I can still count along for all of the Count Fourways Challenges



Step 1: I can complete a 1, 10 card
Step 2: I can complete a 1, 2, 5, 10 card [Where's Mully? \(Division\):](#)
Step 1: I can find Mully using my tables [Pom's Words:](#)
Step 1: I can find multiples
Step 2: I can find factors
Step 3: I can understand square numbers [The Fact Families:](#)
Step 3: I know the Fact Family when given a single addition fact
Step 4: I know the Fact Families for 1d x 1d facts

Step 23: I know the 1d gap from a multiple of ten
Step 24: I know the total gap across a multiple of ten
Step 25: I can take a multiple of ten from *any* 2d number
Step 26: I can find the 2 gaps in a 2d-2d question
Step 27: I can solve *any* 2d-2d
Step 28: I can take any 2d numbers from 100 [The Multiplication Progress Drive:](#)
Step 8: I can solve repeated addition
Step 9: I can solve 1d x 1d
Step 10: I can do Smile Multiplication
Step 11: I can solve 1d x 2d (x 2, 3, 4, 5)
Step 12: I can solve *any* 1d x 1d [The Division Progress Drive:](#)
Step 13: I can arrange a division number sentence
Step 14: I can solve a division number sentence with objects
Step 15: I can solve division using objects (with remainders)
Step 16: I can use a tables fact to find a division fact
Step 17: I can use a tables fact to find a division fact (with remainders)
Step 18: I can combine 2 or more tables facts to solve division

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| | | | Step 19: I can combine 2 or more tables facts to solve division (with remainders) |
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NUMBER

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| | Statutory Requirements Year Two | Statutory Requirements YEAR THREE | Statutory Requirements Year Four |
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| NUMBER AND PLACE VALUE | <p>a) count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</p> <p>b) recognise the place value of each digit in a two-digit or/and 3-digit number (hundreds, tens, ones)</p> <p>c) identify, represent and estimate numbers using different representations, including the number line</p> <p>d) compare and order numbers from 0 up to 100; use <, > and = signs</p> <p>e) read and write numbers to at least 100 in numerals and in words</p> <p>f) use place value and number facts to solve problems.</p> | <p>h) count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</p> <p>i) recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</p> <p>j) compare and order numbers up to 1000</p> <p>k) identify, represent and estimate numbers using different representations</p> <p>l) read and write numbers up to 1000 in numerals and in words</p> <p>m) solve number problems and practical problems involving these ideas.</p> <p>n) round any number to the nearest 10</p> <p>Year Three vocab refer to previous years PLUS: Hundreds, thousands, units, relationship, one hundred more/less, approximate, approximately, round up/down, round to nearest 10, count in fours/sixes/eights, negative numbers, greatest/least value.</p> <p>Problem solving: Method, equation, more/most expensive, less/least expensive, amount, value, worth, change, show your working, interpret, < (less than), > (greater than)</p> | <p>a) count in multiples of 7, 9, 25 and 1000</p> <p>b) find 1000 more or less than a given number</p> <p>c) count backwards through zero to include negative numbers</p> <p>d) recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</p> <p>e) order and compare numbers beyond 1000</p> <p>f) identify, represent and estimate numbers using different representations</p> <p>g) round any number to the nearest 10, 100 or 1000</p> <p>h) solve number and practical problems that involve all of the above and with</p> <p>i) increasingly large positive numbers</p> <p>j) read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</p> |
| ADDITION AND SUBTRACTION | <p>a) solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods <p>b) recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>c) add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> a two-digit number and ones a two-digit number and tens two two-digit numbers | <p>d) add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> a three-digit number and ones a three-digit number and tens □ a three-digit number and hundreds <p>e) add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</p> <p>f) estimate the answer to a calculation and use inverse operations to check answers</p> <p>g) solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p> | <p>a) add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</p> <p>b) estimate and use inverse operations to check answers to a calculation</p> <p>c) solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p> |

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| | <ul style="list-style-type: none"> adding three one-digit numbers show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot d) recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. | Year Three vocab refer to previous years PLUS: Hundreds boundary, carry, inverse. | |
| MULTIPLICATION AND DIVISION | <p>a) recall and use multiplication and division facts for the 2, 5, 10 (and 3 if possible) multiplication tables, including recognising odd and even numbers</p> <p>b) calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals (=) signs</p> <p>c) show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p> <p>d) solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p> <p>e) write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</p> | <p>a) recall and use multiplication and division facts for the 3, 4, 6 and 8 multiplication tables, beginning to recognise factor pairs</p> <p>b) write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods</p> <p>c) solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</p> <p>Year Three vocab refer to previous years PLUS: Multiplication, product, division, remainder, formal written method, carry, bus stop method, inverse, factor pairs.</p> | <p>a) recall multiplication and division facts for 7, 9, 11 and 12 multiplication tables</p> <p>b) use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</p> <p>c) recognise and use factor pairs and commutativity in mental calculations</p> <p>d) multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p> <p>e) solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p> <p>f) know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>g) establish whether a number up to 100 is prime and recall prime numbers up to 19</p> |

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| F Fractions, including Frac FRACTIONS Inc | <p>a) recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity</p> <p>b) write simple fractions for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$</p> | Decimals <ul style="list-style-type: none"> a) count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 b) recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions will small denominators c) recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators d) recognise and show, using diagrams, equivalent fractions with small denominators e) add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] f) compare and order unit fractions, and fractions with | <ul style="list-style-type: none"> a) recognise and show, using diagrams, families of common equivalent fractions b) count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. c) solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number d) add and subtract fractions with the same denominator e) recognise and write decimal equivalents of any number of tenths or hundredths f) recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ |
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| | <p>the same denominators</p> <p>g) solve problems that involve all of the above Try to do this if time (Y3 statement):</p> <p><i>find the effect of dividing a one- or two-digit number by 10</i></p> <p>Moved from Y4 to Y3:</p> <ul style="list-style-type: none"> • recognise and show, using diagrams, families of common equivalent fractions • add and subtract fractions with the same denominator (inc whole numbers) $2\frac{1}{3} + 2\frac{1}{3}$ • recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ <p>Year Three vocab refer to previous years PLUS: One/two/three thirds, equivalent, fifths, sixths, sevenths, eighths, ninths, decimal point, nought point one/two/three etc.</p> | <p>g) find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths</p> <p>h) round decimals with one decimal place to the nearest whole number</p> <p>i) compare numbers with the same number of decimal places up to two decimal places</p> <p>j) solve simple measure and money problems involving fractions and decimals to two decimal places.</p> <p>NB: Red indicates these statements will be introduced in Y3 and recapped in Y4.</p> |
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MEASUREMENT

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| | Statutory Requirements Year Two | Statutory Requirements YEAR THREE | Statutory Requirements Year Four |
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| <p>MEASUREMENT</p> <ul style="list-style-type: none"> a) choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}\text{C}$); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels b) compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$ c) recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value d) find different combinations of coins that equal the same amounts of money e) solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change f) compare and sequence intervals of time g) tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times h) know the number of minutes in an hour and the number of hours in a day. Know the number of seconds in a minute and the number of days in each month, year and leap year | <ul style="list-style-type: none"> a) measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) b) measure the perimeter of simple 2-D shapes c) add and subtract amounts of money to give change, using both £ and p in practical contexts d) tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks e) estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight f) know the number of seconds in a minute and the number of days in each month, year and leap year g) compare durations of events [for example to calculate the time taken by particular events or tasks] <p>Year Three vocab refer to previous years PLUS: Division (reading scales), approximately, distance to/from/apart, mile, century, decade, calendar, date, am, pm, earliest, latest, area, perimeter, Roman Numerals, seconds, minutes, leap year, noon, midnight, digital, analogue.</p> | <ul style="list-style-type: none"> a) Convert between different units of measure [for example, kilometre to metre; hour to minute] b) measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres c) find the area of rectilinear shapes by counting squares d) estimate, compare and calculate different measures, including money in pounds and pence e) read, write and convert time between analogue and digital 12- and 24-hour clocks j) solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. |
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GEOMETRY

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| | Statutory Requirements Year Two | Statutory Requirements YEAR THREE | Statutory Requirements Year Four |
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| PROPERTIES OF SHAPES | <ul style="list-style-type: none"> a) identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line b) identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces c) <i>draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</i> d) identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] e) compare and sort common 2-D and 3-D shapes and everyday objects. | <ul style="list-style-type: none"> a) draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them b) recognise angles as a property of shape or a description of a turn c) identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle d) identify horizontal and vertical lines and pairs of perpendicular and parallel lines. <p>Try to fit these in if possible (Y4 statements):</p> <ul style="list-style-type: none"> e) <i>begin to identify acute and obtuse angles</i> f) <i>complete a simple symmetric figure with respect to a specific line of symmetry</i> <p>For Year Three vocab refer to previous years PLUS: Right-angled, vertex, vertices, layer, diagram, hemi-sphere, prism, semi-circle, pentagonal, hexagonal, octagonal, quadrilateral, parallel, perpendicular, acute, obtuse.</p> | <ul style="list-style-type: none"> a) compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes b) identify acute and obtuse angles and compare and order angles up to two right angles by size c) identify lines of symmetry in 2-D shapes presented in different orientations d) complete a simple symmetric figure with respect to a specific line of symmetry. e) <i>know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</i> f) <i>begin to draw given angles, and measure them in degrees (°)</i> |
| POSITION AND DIRECTION | <ul style="list-style-type: none"> a) order and arrange combinations of mathematical objects in patterns and sequences b) use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise) | <p>Try to fit this in if possible (Y4 statement):</p> <p>a) describe positions on a 2-D grid as coordinates in the first quadrant</p> <p>Year Three vocab refer to previous years PLUS: Co-ordinates, quadrant, axis, map, plan, ascend, descend, grid, row, column, compass point, north, south, east, west, horizontal, vertical, diagonal, angle (greater/smaller than)</p> | <ul style="list-style-type: none"> a) describe positions on a 2-D grid as coordinates in the first quadrant. b) describe movements between positions as translations of a given unit to the left/right and up/down c) plot specified points and draw sides to complete a given polygon |
| STATISTICS | <ul style="list-style-type: none"> a) interpret and construct simple pictograms, tally charts, block diagrams and simple tables b) ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity c) ask and answer questions about totalling and comparing categorical data. | <ul style="list-style-type: none"> a) interpret and present data using bar charts, pictograms and tables b) solve one-step and two-step questions [for example, ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables. <p>Year Three vocab refer to previous years PLUS:</p> | <ul style="list-style-type: none"> a) interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. b) solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. |



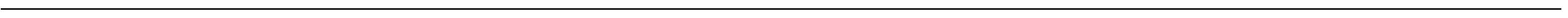
frequency table, Carroll and Venn diagrams (both optional), axis, axes, show your working, interpret.

Mathematics

Year 4 Mental Mathematics Expectations

Taken from Big Maths, leading to secure targeting for all children. The Calculate section overlaps into written methods and will also overlap with the scheme of work.

| COUNTING | LEARN ITS | IT'S NOTHING NEW | CALCULATE |
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| <p>The Reading Numbers Progress Drive: Step 7, 8, 9: I can read 4, 5, 6 digit numbers</p> <p>The Squiggleworth Progress Drive: Step 2: I can partition a 3d then a 4d number Step 3: I can partition a 1dp number Step 4: I can partition a 2dp number Step 5: I can partition a 3dp number</p> <p>The CORE Numbers Progress Drive: Step 5: I can understand 4d numbers Step 6: I can understand 1dp numbers Step 7: I can understand 2dp numbers Step 8: I can understand 3dp numbers</p> <p>The Counting Multiples Progress Drive: Step 6: I can count in eights Step 7: I can count in sixes Step 8: I can count in sevens Step 9: I can count in nines</p> <p>The Count Fourways Progress Drive:</p> | <p>Multiplication Learn Its: Step 13: The 6 fact challenge (includes 7x and 9x table) Step 14: 11x table Step 15: 12x table</p> | <p>Adding with Pim: Step 4: I can add tenths Step 5: I can add hundredths</p> <p>Doubling with Pim (Without crossing 10): Doubling with Pim (Without crossing 10) Step 5: I can double 3d numbers</p> <p>Doubling with Pim (Crossing 10): Step 4: I can double 3d multiples of ten Step 5: I can double 3d numbers</p> <p>Halving with Pim: Step 3: I know half of 300, 500, 700, 900 Step 4: I know half of 3, 5, 7, 9 as decimals Step 5: I can halve any 2d number</p> <p>Jigsaw numbers: Step 4: I can find the missing piece to a thousand Step 5: I can find the missing decimal piece</p> <p>Multiplying by Ten:</p> | <p>The Addition Progress Drive: Step 29: I can solve <i>any</i> 3d + 3d Step 30: I can solve <i>any</i> 3d + 3d as money Step 31: I can solve <i>any</i> 3d + 3d as money Step 32: I can solve 1dp + 1dp Step 33: I can solve <i>any</i> 1dp + 1dp Step 34: I can solve 1d.1dp + 1d.1dp Step 35: I can solve <i>any</i> 1d.1dp + 1d.1dp</p> <p>The Subtraction Progress Drive Step 25: I can take a multiple of ten from any 2d number Step 26: I can find the 2 gaps in a 2d – 2d question. Step 27: I can solve <i>any</i> 2d – 2d Step 28: I can take any 2d number from 100 Step 29: I can take 100 from any 3d number Step 30: I can solve 3d – 2d Step 31: I can solve 4d – 2d</p> |



Step 3: I can count in 200s
Step 4: I can count in 2000s
Step 5: I can count in fifths
Step 6: I can count in 0.2s

[The Counting Along Progress Drive:](#)

Step 3: I can still count along for all of the
Count Fourways Challenges
Step 4: I can even count along when there are no lines



Step 3: I can multiply decimals by 10 Step 4: I can multiply decimals by 100 [Smile](#)

[Multiplication:](#)

Step 3: I can write smile multiplication fact families
Step 4: I can do smile multiplication for tenths

[Coin Multiplication:](#)

Step 3: I can complete a full coin card Step 4: I know when to add two multiples together

[Where's Mully? \(Division\):](#)

Step 1: I can find Mully using my tables Step 2: I can find Mully using ten lots and a table fact

Step 3: I can Mully using Smile multiplication [Pom's Words:](#)

Step 3: I can understand square numbers Step 4: I understand prime numbers [The Fact Families:](#)

Step 4: I know the Fact Families for 1d x 1d facts

Step 5: I know Smile Multiplication Fact Families

Step 32: I can solve 3d – 3d
Step 33: I can solve 3d – 3d as money Step 34: I can subtract numbers with hundredths

Step 35: I can subtract numbers with tenths Step 36: I can solve any whole number subtraction question.

Step 37: I can subtract numbers with different decimal places

[The Multiplication Progress Drive:](#)

Step 12: I can solve *any* 1d x 1d
Step 13: I can do *any* Smile Multiplication

Step 14: I can solve *any* 1d x 2d
Step 15: I can solve any 1d x 3d

Step 16: I can show my understanding for 2d x 2d

Step 17: I can solve 1d x 1d.1dp [The Division Progress Drive:](#)

Step 18: I can combine 2 or more tables facts to solve division
Step 19: I can combine 2 or more tables facts to solve division (with remainders)

Step 20: I can use a tables fact to find a division fact
Step 21: I can use a tables fact to find a division fact (with remainders)

Step 22: I can combine 2 or more tables facts to solve division

Step 23: I can combine 2 or more tables facts to solve division (with remainders)
Step 24: I can use a Smile Multiplication fact to find a division fact

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| | | | <p>Step 25: I can use a Smile Multiplication fact to find a division fact (with remainders)</p> <p>Step 26: I can combine a Smile Multiplication fact with a times tables fact to solve division.</p> <p>Step 27: I can combine a Smile Multiplication fact with a tables fact to solve division (with remainders)</p> <p>Step 28: I can use a coin fact to find a division fact</p> |
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Step 29: I can use a coin fact to find a division fact (with remainders)



NUMBER

| | Statutory Requirements Year Three | Statutory Requirements YEAR FOUR | Statutory Requirements Year Five |
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| NUMBER AND PLACE VALUE | <p>a) count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</p> <p>b) recognise the place value of each digit in a threedigit number (hundreds, tens, ones)</p> <p>c) compare and order numbers up to 1000</p> <p>d) identify, represent and estimate numbers using different representations</p> <p>e) read and write numbers up to 1000 in numerals and in words</p> <p>f) solve number problems and practical problems involving these ideas.</p> <p>g) round any number to the nearest 10</p> | <p>a) count in multiples of 7, 9, 25 and 1000</p> <p>b) find 1000 more or less than a given number</p> <p>c) count backwards through zero to include negative numbers</p> <p>d) recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</p> <p>e) order and compare numbers beyond 1000</p> <p>f) identify, represent and estimate numbers using different representations</p> <p>g) round any number to the nearest 10, 100 or 1000</p> <p>h) solve number and practical problems that involve all of the above and with increasingly large positive numbers</p> <p>i) read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</p> <p>Year Four vocab refer to previous years PLUS: Thousands, ten thousands, hundred thousand, million, four digit number, numeral, one thousand more/less, round to nearest hundred, integer, positive, negative, above/below zero, minus, consecutive, sort, classify, property, decimal place, Roman numerals, round to nearest hundred/thousand. Count in sevens/nines/twentyfives/thousands. <, > Problem Solving: justify, construct, make a statement about, two-step problem, logical, trial and improve.</p> | <p>a) read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit</p> <p>b) count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p>c) interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero</p> <p>d) round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</p> <p>e) solve number problems and practical problems that involve all of the above</p> <p>f) read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</p> |

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| ADDITION AND SUBTRACTION <ul style="list-style-type: none"> a) add and subtract numbers mentally, including: <ul style="list-style-type: none"> • a three-digit number and ones • a three-digit number and tens • a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction b) estimate the answer to a calculation and use inverse operations to check answers, solve | <ul style="list-style-type: none"> a) add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate b) estimate and use inverse operations to check answers to a calculation c) solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. | <ul style="list-style-type: none"> a) add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) b) add and subtract numbers mentally with increasingly large numbers c) use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy d) solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why |
| <p>problems, including missing number problems, using number facts, place value, and more complex addition and subtraction</p> | <p>Year Four vocab refer to previous years PLUS: use inverse, estimate, column addition/subtraction, carry.</p> | <p>contexts, deciding which operations and methods to use and why</p> |

MULTIPLICATION AND DIVISION

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| <ul style="list-style-type: none">a) recall and use multiplication and division facts for the 4, 6 and 8 multiplication tables, beginning to recognise factor pairsb) write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methodsc) solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. | <ul style="list-style-type: none">a) recall multiplication and division facts for 7, 9, 11 and 12 multiplication tablesb) use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbersc) recognise and use factor pairs and commutativity in mental calculationsd) multiply two-digit and three-digit numbers by a one-digit number using formal written layoute) solve problems involving multiplying and dividing, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. <p>If possible try to do this (Year 5 statement):</p> <ul style="list-style-type: none">f) divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context <p>Year Four vocab refer to previous years PLUS: Factor, quotient, divisible by, use inverse, decimal, remainder, justify, make a statement about, two-step problem, logical.</p> | <ul style="list-style-type: none">a) identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbersb) know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbersc) establish whether a number up to 100 is prime and recall prime numbers up to 19d) multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numberse) multiply and divide numbers mentally drawing upon known factsf) divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the contextg) multiply and divide whole numbers and those involving decimals by 10, 100 and 1000h) recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)i) solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubesj) solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals signk) solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates |
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| FRACTIONS AND DECIMALS | <p>a) count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</p> <p>b) recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</p> <p>c) recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</p> <p>d) recognise and show, using diagrams, equivalent fractions with small denominators</p> <p>e) add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$]</p> <p>f) compare and order unit fractions, and fractions with the same denominators</p> <p>g) solve problems that involve all of the above</p> <p>c) find the effect of dividing a one- or two-digit number by 10</p> | <p>a) recognise and show, using diagrams, families of common equivalent fractions</p> <p>b) count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</p> <p>c) solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number</p> <p>d) add and subtract fractions with the same denominator</p> <p>e) recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>f) recognise and write decimal equivalents to $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$</p> <p>g) find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths</p> <p>h) round decimals with one decimal place to the nearest whole number</p> <p>i) compare numbers with the same number of decimal places up to two decimal places</p> <p>j) solve simple measure and money problems involving fractions and decimals to two decimal places.</p> <p>Intro in Y4 /moved from Y5 curriculum:</p> <ul style="list-style-type: none"> • round decimals with two decimal places to the nearest whole number and to one decimal place • solve problems involving number up to three decimal places <p>Year Four vocab refer to previous years PLUS: Unit and non-unit fraction, two/three decimal places, hundredths, tenths, twentieth, proportion, mixed number, decimal fraction</p> | <p>a) compare and order fractions whose denominators are all multiples of the same number</p> <p>b) identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>c) recognise mixed numbers and improper fractions and convert from one form to the other</p> <p>d) other and write mathematical statements > 1 as a mixed number [for example, $2/5 + 4/5 = 6/5 = 1\frac{1}{5}$]</p> <p>e) add and subtract fractions with the same denominator and denominators that are multiples of the same number</p> <p>f) multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>g) read and write decimal numbers as fractions [for example, $0.71 = 71/100$]</p> <p>h) recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>i) round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>j) read, write, order and compare numbers with up to three decimal places</p> <p>k) solve problems involving number up to three decimal places</p> <p>l) recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal</p> <p>m) solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.</p> <p>NB: Red indicates these statements will be introduced in Y4 and recapped in Y5.</p> |
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| RATIO AND PROPORTION | | <ul style="list-style-type: none"> a) solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison b) begin to solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts c) begin to solve problems involving unequal sharing |
| ALGEBRA | | <p>(ratio) and grouping using knowledge of fractions and multiples.</p> <p>a) use simple formulae (e.g. length x width, or $A=lxw$ etc.)</p> |



MEASUREMENT

| | Statutory Requirements Year Three | Statutory Requirements YEAR FOUR | Statutory Requirements Year Five |
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| MEASUREMENT | <ul style="list-style-type: none"> a) measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) b) measure the perimeter of simple 2-D shapes c) add and subtract amounts of money to give change, using both £ and p in practical contexts d) tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks e) estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight f) know the number of seconds in a minute and the number of days in each month, year and leap year g) compare durations of events [for example to calculate the time taken by particular events or tasks] h) <i>Convert between different units of measure [for example, kilometre to metre; hour to minute]</i> | <ul style="list-style-type: none"> a) Convert between different units of measure [for example, kilometre to metre; hour to minute] b) measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres c) find the area of rectilinear shapes by counting squares d) estimate, compare and calculate different measures, including money in pounds and pence e) read, write and convert time between analogue and digital 12- and 24-hour clocks f) solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. <p>Year Four vocab refer to previous years PLUS: Convert, measurement, unit/standard unit, metric unit, imperial unit, breadth, perimeter, area, millimetre (mm), mass, pint, measuring cylinder, square centimetres (cm^2), millennium, leap year, timetable, arrive/depart.</p> | <ul style="list-style-type: none"> a) convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) b) understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints c) measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres d) calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes e) estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] f) solve problems involving converting between units of time k) use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. |

GEOMETRY

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| | Statutory Requirements Year Three | Statutory Requirements YEAR FOUR | Statutory Requirements Year Five |
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| PROPERTIES OF SHAPES | <p>a) draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p> <p>b) recognise angles as a property of shape or a description of a turn</p> <p>c) identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle</p> <p>d) identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p> <p>e) <i>identify acute and obtuse angles</i></p> <p>f) <i>complete a simple symmetric figure with respect to a specific line of symmetry</i></p> | <p>a) compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</p> <p>b) identify acute and obtuse angles and compare and order angles up to two right angles by size</p> <p>c) identify lines of symmetry in 2-D shapes presented in different orientations</p> <p>d) complete a simple symmetric figure with respect to a specific line of symmetry.</p> <p>Year Four vocab refer to previous years PLUS: Construct, radius, diameter, net, angle, base, regular, irregular, concave, convex, 3D (three dimensional), spherical, cylindrical, tetrahedron, polyhedron, 2D (two dimensional), equilateral triangle, isosceles triangle, oblong, heptagon, polygon, line symmetry, reflect, translation, acute, obtuse, reflex, protractor, degrees.</p> | <p>a) identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p> <p>b) know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</p> <p>c) draw given angles, and measure them in degrees ($^{\circ}$)</p> <p>d) identify:</p> <ul style="list-style-type: none"> • angles at a point and one whole turn (total 360°) • angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) • other multiples of 90° • (Pupils use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems.) <p>e) use the properties of rectangles to deduce related facts and find missing lengths and angles</p> <p>a) distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p> |
| POSITION AND DIRECTION | <p>a) <i>describe positions on a 2-D grid as coordinates in the first quadrant</i></p> | <p>a) describe positions on a 2-D grid as coordinates in the first quadrant</p> <p>b) describe movements between positions as translations of a given unit to the left/right and up/down</p> <p>c) plot specified points and draw sides to complete a given polygon</p> <p>Year Four vocab refer to previous years PLUS: Plot, origin, co-ordinates, north-east, north-west, southeast, south-west, degree, set square, compasses, 4 quadrants X axis, Y axis.</p> | <p>a) identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed</p> <p>b) describe positions on the full coordinate grid (all four quadrants)</p> |

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| STATISTICS | <ul style="list-style-type: none">a) interpret and present data using bar charts, pictograms and tablesb) solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. <p>Year Three vocab refer to previous years PLUS: Survey, questionnaire, data.</p> | <ul style="list-style-type: none">a) interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.b) solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. <ul style="list-style-type: none">a) solve comparison, sum and difference problems using information presented in a line graphb) complete, read and interpret information in tables, including timetables |

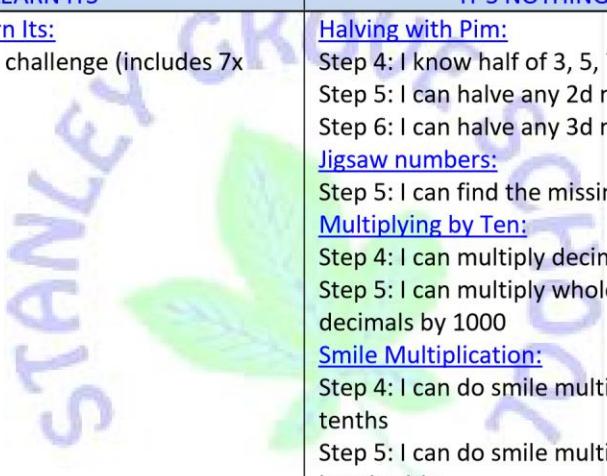


Mathematics

Year 5

Mental Mathematics Expectations

Taken from Big Maths, leading to secure targeting for all children. The Calculate section overlaps into written methods and will also overlap with the scheme of work.

| COUNTING | LEARN ITS | IT'S NOTHING NEW | CALCULATE |
|--|---|---|--|
| <p>The Reading Numbers Progress Drive: Step 7, 8, 9: I can read 4, 5, 6 digit numbers Step 10: I can read 7, 8, 9 digit numbers Step 11: I can read numbers with decimal places</p> <p>The Squiggleworth Progress Drive: Step 4: I can partition a 2dp number Step 5: I can partition a 3dp number</p> <p>The CORE Numbers Progress Drive: Step 7: I can understand 2dp numbers Step 8: I can understand 3dp numbers Step 9: I can understand 5, 6, 7, 8 digit numbers Step 10: I can understand numbers with different decimal places</p> <p>The Count Fourways Progress Drive: Step 5: I can count in fifths Step 6: I can count in 0.2s Step 7: I can count in -2s</p> <p>The Counting Along Progress Drive: Step 4: I can even count along when there are no lines Step 5: I can count along any numberline Step 6: I can find the gap between 2 negative numbers Step 7: I can find the gap between a negative number and a positive number</p> | <p>Multiplication Learn Its: Step 13: The 6 fact challenge (includes 7x and 9x table) Step 14: 11x table Step 15: 12x table</p>  | <p>Halving with Pim: Step 4: I know half of 3, 5, 7, 9 as decimals Step 5: I can halve any 2d number Step 6: I can halve any 3d number</p> <p>Jigsaw numbers: Step 5: I can find the missing decimal piece</p> <p>Multiplying by Ten: Step 4: I can multiply decimals by 100 Step 5: I can multiply whole numbers and decimals by 1000</p> <p>Smile Multiplication: Step 4: I can do smile multiplication for tenths Step 5: I can do smile multiplication for hundredths</p> <p>Coin Multiplication: Step 4: I know when to add two multiples together Step 5: I know when to add three multiples together</p> <p>Where's Mully? (Division): Step 3: I can find Mully using Smile multiplication Step 4: I can find Mully using smile multiplication and tables facts</p> <p>Pom's Words: Step 3: I can understand square numbers Step 4: I understand prime numbers</p> | <p>The Addition Progress Drive: Step 36: I can solve additions with 2dp Step 37: I can solve <i>any</i> additions with 2dp Step 38: I can solve additions with larger numbers Step 39: I can solve additions with several numbers Step 40: I can solve 2dp + 1dp Step 41: I can solve <i>any</i> 2dp + 1dp</p> <p>The Subtraction Progress Drive Step 25: I can take a multiple of ten from any 2d number Step 26: I can find the 2 gaps in a 2d – 2d question. Step 27: I can solve <i>any</i> 2d – 2d Step 28: I can take any 2d number from 100 Step 29: I can take 100 from any 3d number Step 30: I can solve 3d – 2d Step 31: I can solve 4d – 2d Step 32: I can solve 3d – 3d Step 33: I can solve 3d – 3d as money Step 34: I can subtract numbers with hundredths Step 35: I can subtract numbers with tenths Step 36: I can solve any whole number subtraction question. Step 37: I can subtract numbers with different decimal places</p> |



[The Fact Families:](#)

Step 4: I know the Fact Families for 1d x 1d facts
Step 5: I know Smile Multiplication Fact Families

[The Multiplication Progress Drive:](#)

Step 16: I can show my understanding for 2d x 2d
Step 17: I can solve 1d x 1d.1dp
Step 18: I can solve 1d x 1d.2dp
Step 19: I can show my understanding for 2d x 3d

[The Division Progress Drive:](#)

Step 25: I can use a Smile Multiplication fact to find a division fact (with remainders)
Step 26: I can combine a Smile Multiplication fact with a times tables fact to solve division.
Step 27: I can combine a Smile Multiplication fact with a tables fact to solve division (with remainders)
Step 28: I can use a coin fact to find a division fact
Step 29: I can use a coin fact to find a division fact (with remainders)
Step 30: I can combine 2 or more coin facts to solve division
Step 31: I can combine 2 or more coin facts to solve division (with remainders)

NUMBER

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| | Statutory Requirements Year Four | Statutory Requirements YEAR FIVE | Statutory Requirements Year Six |
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| NUMBER AND PLACE VALUE | <ul style="list-style-type: none"> a) count in multiples of 7, 9, 25 and 1000 b) find 1000 more or less than a given number c) count backwards through zero to include negative numbers d) recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) e) order and compare numbers beyond 1000 f) identify, represent and estimate numbers using different representations g) round any number to the nearest 10, 100 or 1000 h) solve number and practical problems that involve all of the above and with i) increasingly large positive numbers j) read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. | <ul style="list-style-type: none"> a) read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit b) count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 c) interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero d) round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 e) solve number problems and practical problems that involve all of the above f) read Roman numerals to 1000 (M) and recognise years written in Roman numerals. <p>Year Five vocab refer to previous years PLUS: \geq(greater than or equal to) \leq(less than or equal to) Ascending/descending order, round to nearest ten/hundred thousand, formula, divisibility, square number, one/two squared etc., cubed, Roman Numerals, currency, discount. Problem solving: strategy, identify, reasoning.</p> | <ul style="list-style-type: none"> a) read, write, order and compare numbers up to 10 000 000 and determine the value of each digit b) round any whole number to a required degree of accuracy c) use negative numbers in context, and calculate intervals across zero, add and subtract positive and negative numbers d) solve number and practical problems that involve all of the above. |
| ADDITION AND SUBTRACTION | <ul style="list-style-type: none"> a) add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate b) estimate and use inverse operations to check answers to a calculation c) solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. | <ul style="list-style-type: none"> a) add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) b) add and subtract numbers mentally with increasingly large numbers c) use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy d) solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why <p>Year Five vocab refer to previous years PLUS: Multi-step problem, rounding, check.</p> | <ul style="list-style-type: none"> a) perform mental calculations, including with mixed operations and large numbers b) use their knowledge of the order of operations to carry out calculations involving the four operations c) solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why d) solve problems involving addition, subtraction, multiplication and division e) use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy |

MULTIPLICATION AND DIVISION

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| <ul style="list-style-type: none">a) recall multiplication and division facts for 7, 9, 11 and 12 multiplication tablesb) use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbersc) recognise and use factor pairs and commutativity in mental calculationsd) multiply two-digit and three-digit numbers by a one-digit number using formal written layoute) solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.f) <i>know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</i>g) <i>establish whether a number up to 100 is prime and recall prime numbers up to 19</i> | <ul style="list-style-type: none">a) identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbersb) know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbersc) establish whether a number up to 100 is prime and recall prime numbers up to 19d) multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numberse) multiply and divide numbers mentally drawing upon known factsf) divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the contextg) multiply and divide whole numbers and those involving decimals by 10, 100 and 1000h) recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)i) solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubesj) solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals signk) solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. | <ul style="list-style-type: none">a) multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplicationb) divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the contextc) divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the contextd) perform mental calculations, including with mixed operations and large numberse) identify common factors, common multiples and prime numbersf) use their knowledge of the order of operations to carry out calculations involving the four operationsg) solve problems involving addition, subtraction, multiplication and divisionh) use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy |
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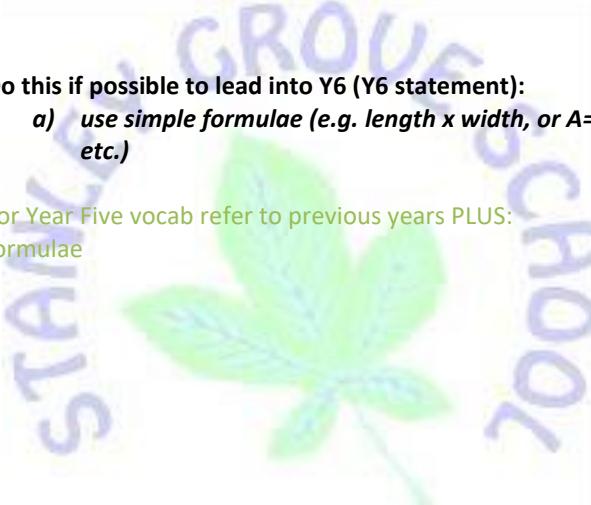
For Year Five vocab refer to previous years PLUS:

Common factors, prime factors, composite numbers
(nonprime), cubed numbers, scaling.

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| FRACTIONS AND DECIMALS | <p>a) recognise and show, using diagrams, families of common equivalent fractions</p> <p>b) count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</p> <p>c) solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions</p> | <p>a) compare and order fractions whose denominators are all multiples of the same number</p> <p>b) identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>c) recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for</p> | <p>a) use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>b) compare and order fractions, including fractions > 1</p> <p>c) add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> <p>d) multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$]</p> |
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| <p>where the answer is a whole number</p> <p>d) add and subtract fractions with the same denominator</p> <p>e) recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>f) recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$</p> <p>g) find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths</p> <p>h) round decimals with one decimal place to the nearest whole number</p> <p>i) compare numbers with the same number of decimal places up to two decimal places</p> <p>h) solve simple measure and money problems involving fractions and decimals to two decimal places.</p> | <p>example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$</p> <p>d) add and subtract fractions with the same denominator and denominators that are multiples of the same number</p> <p>e) multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>f) read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$]</p> <p>g) recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>h) round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>i) read, write, order and compare numbers with up to three decimal places</p> <p>j) solve problems involving number up to three decimal places</p> <p>k) recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal</p> <p>l) solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.</p> <p>To be introduced in Y5 (from Y6 curriculum):</p> <ul style="list-style-type: none"> • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] • divide proper fractions by whole numbers [for example, $\frac{1}{3}$ divided by 2 = $\frac{1}{6}$] • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers | <p>e) divide proper fractions by whole numbers [for example, $\frac{1}{3}$ divided by 2 = $\frac{1}{6}$]</p> <p>f) associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]</p> <p>g) identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</p> <p>h) multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>i) use written division methods in cases where the answer has up to two decimal places</p> <p>j) solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>k) recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p> <p>NB: Red indicates these statements will now be introduced in Y5 and recapped in Y6.</p> <p>For Year Six vocab refer to previous years, including: Proper/improper fraction, mixed number, cancel down, percentage, %, per cent, 3 decimal places nearest whole, thousandths, decimal equivalents, fraction equivalents.</p> |
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For Year Five vocab refer to previous years PLUS:
Proper/improper fraction, mixed number, cancel down,
percentage, %, per cent, 3 decimal places nearest whole,
thousandths, decimal equivalents.

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| Ratio and Proportion | <p>Do these if possible to lead into Y6 (They are Y6 statements):</p> <p><i>a) begin to solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</i></p> <p><i>b) begin to solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</i></p> <p><i>c) begin to solve problems involving unequal sharing (ratio) and grouping using knowledge of fractions and multiples.</i></p> <p>For Year Five vocab refer to previous years PLUS: Per cent, ratio</p> | <ul style="list-style-type: none"> a) solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts b) solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison c) solve problems involving similar shapes where the scale factor is known or can be found d) solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. <p>For Year Six vocab refer to previous years PLUS: Per cent, ratio, proportion.</p> |
| Algebra | <p>Do this if possible to lead into Y6 (Y6 statement):</p> <p><i>a) use simple formulae (e.g. length x width, or $A=lxw$ etc.)</i></p> <p>For Year Five vocab refer to previous years PLUS: formulae</p>  | <ul style="list-style-type: none"> a) use simple formulae b) generate and describe linear number sequences c) express missing number problems algebraically d) find pairs of numbers that satisfy an equation with two unknowns e) enumerate possibilities of combinations of two variables <p>For Year Six vocab refer to previous years PLUS: sequence, inverse, BODMAS, algebra, equation</p> |

MEASUREMENT

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| | Statutory Requirements Year Four | Statutory Requirements YEAR FIVE | Statutory Requirements Year Six |
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| <p>MEASUREMENT</p> <ul style="list-style-type: none"> a) Convert between different units of measure [for example, kilometre to metre; hour to minute] b) measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres c) find the area of rectilinear shapes by counting squares d) estimate, compare and calculate different measures, including money in pounds and pence e) read, write and convert time between analogue and digital 12- and 24-hour clocks f) solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. | <ul style="list-style-type: none"> a) convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) b) understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints c) measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres d) calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes e) estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] f) solve problems involving converting between units of time g) use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling. <p>For Year Five vocab refer to previous years PLUS: Volume, pounds (in weight), gallons, capacity, inches, pints, cubed/metres cubed, m/cm cubed.</p> | <ul style="list-style-type: none"> a) solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate b) use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places c) convert between miles and kilometres d) recognise that shapes with the same areas can have different perimeters and vice versa e) recognise when it is possible to use formulae for area and volume of shapes f) calculate the area of parallelograms and triangles g) calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]. <p>For Year Six vocab refer to previous years PLUS:</p> |
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GEOMETRY

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| | Statutory Requirements Year Four | Statutory Requirements YEAR FIVE | Statutory Requirements Year Six |
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| PROPERTIES OF SHAPES <ul style="list-style-type: none"> a) compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes b) identify acute and obtuse angles and compare and order angles up to two right angles by size c) identify lines of symmetry in 2-D shapes presented in different orientations d) complete a simple symmetric figure with respect to a specific line of symmetry. e) know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles f) begin to draw given angles, and measure them in degrees ($^{\circ}$) | <ul style="list-style-type: none"> a) identify 3-D shapes, including cubes and other cuboids, from 2-D representations b) know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles c) draw given angles, and measure them in degrees ($^{\circ}$) d) identify: <ul style="list-style-type: none"> • angles at a point and one whole turn (total 360°) • angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) • other multiples of 90° e) use the properties of rectangles to deduce related facts and find missing lengths and angles g) distinguish between regular and irregular polygons based on reasoning about equal sides and angles. <p style="text-align: center;"><i>For Year Five vocab refer to previous years PLUS: Congruent, octahedron, scalene triangle, reflective symmetry.</i></p> | <ul style="list-style-type: none"> a) draw 2-D shapes using given dimensions and angles b) recognise, describe and build simple 3-D shapes, including making nets c) compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons d) illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius e) recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
| POSITION AND DIRECTION <ul style="list-style-type: none"> a) describe positions on a 2-D grid as coordinates in all four quadrants b) describe movements between positions as translations of a given unit to the left/right and up/down c) plot specified points and draw sides to complete a given polygon | <ul style="list-style-type: none"> a) identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed <p style="text-align: center;">Do if possible to lead into Y6 (Y6 statement): <i>describe positions on the full coordinate grid (all four quadrants)</i></p> <p style="text-align: center;"><i>For Year Five vocab refer to previous years PLUS: Rotation, rotate, translate, translation, quadrants, position.</i></p> | <ul style="list-style-type: none"> a) describe positions on the full coordinate grid (all four quadrants) draw and translate simple shapes b) on the coordinate plane, and reflect them in the axes. |

STATISTICS

- a) interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- b) solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

- a) **solve comparison, sum and difference problems using information presented in a line graph**
- b) **complete, read and interpret information in tables, including timetables**

For Year Five vocab refer to previous years PLUS: Line graph, database, timetable, bar line chart, maximum/minimum value.

- a) interpret and construct pie charts and line graphs and use these to solve problems calculate and
- b) interpret the mean as an average.



Mathematics

Year 6

Mental Mathematics Expectations

Taken from Big Maths, leading to secure targeting for all children. The Calculate section overlaps into written methods and will also overlap with the scheme of work.

| COUNTING | LEARN ITS | IT'S NOTHING NEW | CALCULATE |
|---|---|---|--|
| <p><u>The Reading Numbers Progress Drive:</u> Step 7, 8, 9: I can read 4, 5, 6 digit numbers Step 10: I can read 7, 8, 9 digit numbers Step 11: I can read numbers with decimal places</p> <p><u>The Squiggleworth Progress Drive:</u> Step 5: I can partition a 3dp number</p> <p><u>The CORE Numbers Progress Drive:</u> Step 8: I can understand 3dp numbers Step 9: I can understand 5, 6, 7, 8 digit numbers Step 10: I can understand numbers with different decimal places</p> <p><u>The Counting Along Progress Drive:</u> Step 6: I can find the gap between 2 negative numbers Step 7: I can find the gap between a negative number and a positive number</p> | Should all be taught by this stage – revision of the learn its, particularly the times tables, may be required. | <p><u>Smile Multiplication:</u> Step 4: I can do smile multiplication for tenths Step 5: I can do smile multiplication for hundredths</p> <p><u>Coin Multiplication:</u> Step 4: I know when to add two multiples together Step 5: I know when to add three multiples together</p> <p><u>Where's Mully? (Division):</u> Step 5: I can find Mully using Coin Multiplication</p> <p><u>The Fact Families:</u> Step 5: I know Smile Multiplication Fact Families</p> | <p><u>The Addition Progress Drive:</u> Step 36: I can solve additions with 2dp Step 37: I can solve <i>any</i> additions with 2dp Step 38: I can solve additions with larger numbers Step 39: I can solve additions with several numbers Step 40: I can solve 2dp + 1dp Step 41: I can solve <i>any</i> 2dp + 1dp</p> <p><u>The Subtraction Progress Drive</u> Step 25: I can take a multiple of ten from any 2d number Step 26: I can find the 2 gaps in a 2d – 2d question. Step 27: I can solve <i>any</i> 2d – 2d Step 28: I can take any 2d number from 100 Step 29: I can take 100 from any 3d number Step 30: I can solve 3d – 2d Step 31: I can solve 4d – 2d Step 32: I can solve 3d – 3d Step 33: I can solve 3d – 3d as money Step 34: I can subtract numbers with hundredths Step 35: I can subtract numbers with tenths Step 36: I can solve any whole number subtraction question. Step 37: I can subtract numbers with different decimal places</p> |

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| | | | <p><u>The Multiplication Progress Drive:</u></p> <p>Step 16: I can show my understanding for 2d x 2d</p> <p>Step 17: I can solve 1d x 1d.1dp</p> <p>Step 18: I can solve 1d x 1d.2dp</p> <p>Step 19: I can show my understanding for 2d x 3d</p> <p><u>The Division Progress Drive:</u></p> <p>Step 30: I can combine 2 or more coin facts to solve division</p> <p>Step 31: I can combine 2 or more coin facts to solve division (with remainders)</p> <p>Step 32: I can use a tables fact to find a decimal tables fact</p> <p>Step 33: I can combine 2 or more tables facts to solve decimal division</p> |
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NUMBER

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| | Statutory Requirements Year Five | Statutory Requirements YEAR SIX | Statutory Requirements KS3 |
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| <p>NUMBER AND PLACE VALUE</p> <ul style="list-style-type: none"> a) read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit b) count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 c) interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero d) round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 e) solve number problems and practical problems that involve all of the above f) read Roman numerals to 1000 (M) and recognise years written in Roman numerals. | <p>a) read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</p> <p>b) round any whole number to a required degree of accuracy</p> <p>c) use negative numbers in context, and calculate intervals across zero, add and subtract positive and negative numbers</p> <p>d) solve number and practical problems that involve all of the above.</p> <p>For Year Six vocab refer to previous years PLUS: Ten million, prime factor, profit, loss, negative, positive, thermometer, temperature. Problem solving: prove, define, adjust.</p>  | <ul style="list-style-type: none"> a) understand and use place value for decimals, measures and integers of any size order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 b) and distinguish between exact representations of roots and their decimal approximations round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] c) interpret and compare numbers in standard form $A \times 10^n$, where n is a positive or negative integer or zero f) g) appreciate the infinite nature of the sets of integers, real and rational numbers h) use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a < x \leq b$ |
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ADDITION AND SUBTRACTION

- a) add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- b) add and subtract numbers mentally with increasingly large numbers
- c) use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- d) solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

- a) **perform mental calculations, including with mixed operations and large numbers**
- b) **use their knowledge of the order of operations to carry out calculations involving the four operations**
- c) **solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why**
- d) **solve problems involving addition, subtraction, multiplication and division**
- e) **use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy**

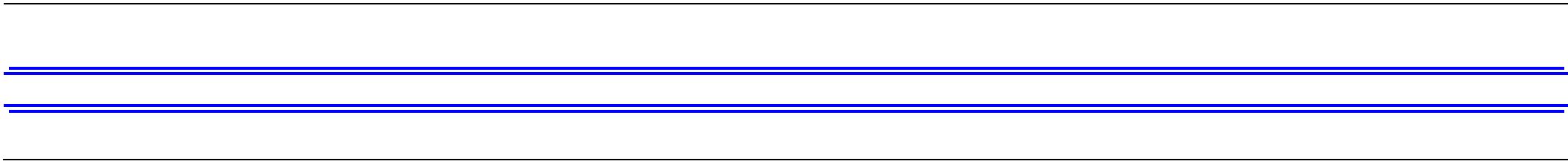
For Year Six vocab: Recap KS2 vocab
e.g. solve, multi-step, estimate, BODMAS.

- a) use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative
- b) use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals
- c) recognise and use relationships between operations including inverse operations

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| MULTIPLICATION AND DIVISION | <p>a) identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</p> <p>b) know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>c) establish whether a number up to 100 is prime and recall prime numbers up to 19</p> <p>d) multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers</p> <p>e) multiply and divide numbers mentally drawing upon known facts</p> <p>f) divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context</p> <p>g) multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</p> <p>h) recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)</p> <p>i) solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes</p> <p>j) solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign</p> <p>k) solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</p> | <p>a) multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p> <p>b) divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context</p> <p>c) divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context</p> <p>d) perform mental calculations, including with mixed operations and large numbers</p> <p>e) identify common factors, common multiples and prime numbers</p> <p>f) use their knowledge of the order of operations to carry out calculations involving the four operations</p> <p>g) solve problems involving addition, subtraction, multiplication and division</p> <p>h) use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</p> | <p>a) use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative</p> <p>b) use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals</p> <p>c) recognise and use relationships between operations including inverse operations</p> |
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For Year Six vocab refer to previous years PLUS:
BODMAS, long division, common factors, recurring.

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| FRACTIONS AND DECIMALS | <p>a) compare and order fractions whose denominators are all multiples of the same number</p> <p>b) identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>c) recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $2/5 + 4/5 = 6/5 = 1\frac{1}{5}$]</p> <p>e) add and subtract fractions with the same denominator and denominators that are multiples of the same number</p> <p>f) multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>g) read and write decimal numbers as fractions [for example, $0.71 = 71/100$]</p> <p>h) recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>i) round decimals with two decimal places to the nearest whole number and to one decimal place</p> <p>j) read, write, order and compare numbers with up to three decimal places</p> <p>k) solve problems involving number up to three decimal places</p> <p>l) recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal</p> <p>m) solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.</p> | <p>a) use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>b) compare and order fractions, including fractions > 1</p> <p>c) add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> <p>d) multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $1/4 \times \frac{1}{2} = 1/8$]</p> <p>e) divide proper fractions by whole numbers [for example, $1/3$ divided by 2 = $1/6$]</p> <p>f) associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $3/8$]</p> <p>g) identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</p> <p>h) multiply one-digit numbers with up to two decimal places by whole numbers</p> <p>i) use written division methods in cases where the answer has up to two decimal places</p> <p>j) solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>k) recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</p> <p>For Year Six vocab refer to previous years PLUS: 3 decimal places, nearest whole, thousandths, Per cent, %, percentage, fraction and decimal equivalent, proper/improper fraction, mixed number, cancel down, nearest whole.</p> | <p>a) work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $2/7$ or 0.375 and $3/8$)</p> <p>b) interpret fractions and percentages as operators</p> |
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| RATIO AND PROPORTION | <p>a) solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</p> <p>b) begin to solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <p>c) begin to solve problems involving unequal sharing (ratio) and grouping using knowledge of fractions and multiples.</p> | <p>a) solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <p>b) solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</p> <p>c) solve problems involving similar shapes where the scale factor is known or can be found</p> <p>d) solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p> <p>For Year Six vocab refer to previous years PLUS: Scale factor</p>  | <p>a) define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%</p> <p>b) change freely between related standard units [for example time, length, area, volume/capacity, mass]</p> <p>c) use scale factors, scale diagrams and maps</p> <p>d) express one quantity as a fraction of another, where the fraction is less than 1 and greater than 1</p> <p>e) use ratio notation, including reduction to simplest form</p> <p>f) divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio</p> <p>g) understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction</p> <p>h) relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions</p> <p>i) solve problems involving percentage change, including: percentage increase, decrease</p> <p>j) and original value problems and simple interest in financial mathematics</p> <p>k) solve problems involving direct and inverse proportion, including graphical and algebraic representations</p> <p>l) use compound units such as speed, unit pricing and density to solve problems.</p> |
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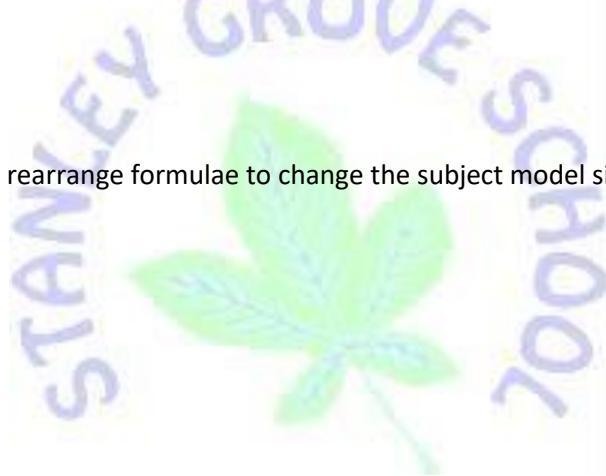
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| Algebra a) use simple formulae (e.g. length x width, or $A=lxw$ etc.) | a) use simple formulae b) generate and describe linear number sequences c) express missing number problems algebraically d) find pairs of numbers that satisfy an equation with two unknowns e) enumerate possibilities of combinations of two variables For Year Six vocab refer to previous years PLUS: Formulae, linear number sequence, algebra, equation | See separate table below for KS3 Algebra requirements. It is not anticipated that all of these will be addressed, but does enable next steps to be set for more able children. |
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Algebra at Key Stage Three

- a) use and interpret algebraic notation, including:
 - ab in place of $a \times b$
 - $3y$ in place of $y + y + y$ and $3 \times y$
 - a^2 in place of $a \times a$, a^3 in place of $a \times a \times a$; $a^2 b$ in place of $a \times a \times b$
 - a/b in place of $a \div b$
 - coefficients written as fractions rather than as decimals
 - brackets
- b) substitute numerical values into formulae and expressions, including scientific formulae
- c) understand and use the concepts and vocabulary of expressions, equations,
- d) inequalities, terms and factors
- e) simplify and manipulate algebraic expressions to maintain equivalence by:
 - collecting like terms
 - multiplying a single term over a bracket
 - taking out common factors

- expanding products of two or more binomials

- f) understand and use standard mathematical formulae; rearrange formulae to change the subject model situations or procedures by translating them into algebraic



expressions or formulae and by using graphs

- g) use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)
- h) work with coordinates in all four quadrants
- i) recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane
- j) interpret mathematical relationships both algebraically and reduce a given linear equation in two variables to the standard form $y = mx + c$;
- k) calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically
- l) use linear and quadratic graphs to estimate values of y for given values of x and vice versa and to find approximate solutions of simultaneous linear equations
- m) find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs
- n) generate terms of a sequence from either a term-to-term or a position-to-term rule
- o) recognise arithmetic sequences and find the n th term recognise geometric sequences and appreciate other sequences that arise.

MEASUREMENT

| | Statutory Requirements Year Five | Statutory Requirements YEAR SIX | Statutory Requirements KS3 |
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| MEASUREMENT | <p>a) convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</p> <p>b) understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</p> <p>c) measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <p>d) calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes</p> <p>e) estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]</p> <p>f) solve problems involving converting between units of time</p> <p>g) use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p> | <p>a) solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</p> <p>b) use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places</p> <p>c) convert between miles and kilometres</p> <p>d) recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>e) recognise when it is possible to use formulae for area and volume of shapes</p> <p>f) calculate the area of parallelograms and triangles</p> <p>g) calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].</p> <p>For Year Six vocab refer to previous years PLUS: Circumference, cubic m/cm/km/mm, GMT, British Summer Time, International Date Line, centilitre (cl).</p> | <p>a) use standard units of mass, length, time, money and other measures, including with decimal quantities</p> <p>b) derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders)</p> <p>c) derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line as the shortest distance to the line</p> <p>Objectives for Measurement and Geometry at KS3 are not exhaustive but give an indication of next steps.</p> |
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GEOMETRY

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| | Statutory Requirements Year Five | Statutory Requirements YEAR SIX | Statutory Requirements KS3 |
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PROPERTIES OF SHAPES

- a) identify 3-D shapes, including cubes and other cuboids, from 2-D representations
- b) know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- c) draw given angles, and measure them in degrees ($^{\circ}$)
- d) identify:
 - angles at a point and one whole turn (total 360°)
 - angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°)
 - other multiples of 90°
 - (Pupils use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems.)
- e) use the properties of rectangles to deduce related facts and find missing lengths and angles
- h)** distinguish between regular and irregular polygons based on reasoning about equal sides and angles.

- a) **draw 2-D shapes using given dimensions and angles**
- b) **recognise, describe and build simple 3-D shapes, including making nets**
- c) **compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons**
- d) **illustrate and name parts of circles, including radius, diameter and circumference and know that the**



For Year Six vocab refer to previous years PLUS:
Circumference, radius, diameter, kite, parallelogram,
rhombus, trapezium, dodecahedron, tangram, concentric,
intersecting.

- diameter is twice the radius**
- e) **recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles**

- a) calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes
- b) draw and measure line segments and angles in geometric figures, including interpreting scale drawings
- c) describe, sketch and draw using conventional terms and
- d) notations: points, lines, parallel lines, perpendicular lines, right angles, regular polygons, and other polygons that are reflectively and rotationally symmetric use the standard conventions for labelling the sides and angles of triangle ABC,
- e) and know and use the criteria for congruence of triangles derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths f) and angles] using appropriate language and technologies use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D
- g)

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| POSITION AND DIRECTION | <p>a) identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed</p> <p>b) <i>describe positions on the full coordinate grid (all four quadrants)</i></p> | <p>a) describe positions on the full coordinate grid (all four quadrants)</p> <p>b) draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</p> <p>For Year Six vocab refer to previous years PLUS: Congruent, reflective symmetry, rotation, rotate, translate, translation, quadrants, position, plane, axes.</p> | |
| STATISTICS | <p>a) solve comparison, sum and difference problems using information presented in a line graph</p> <p>b) <i>complete, read and interpret information in tables, including timetables</i></p> | <p>a) interpret and construct pie charts and line graphs and use these to solve problems</p> <p>b) calculate and interpret the mean as an average. For Year Six vocab refer to previous years PLUS: Mean average, (also mention mode/median and range), pie chart, statistics, distribution.</p> | <p>a) describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers) construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data</p> <p>d) describe simple mathematical relationships between two variables (bivariate data) in observational and experimental</p> |

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| | | contexts and illustrate using scatter graphs |
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PROBABILITY

- a) record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes,
- b) using appropriate language and the 0-1 probability scale
- c) understand that the probabilities of all possible outcomes sum to 1
- d) enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams
- e) generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.

Statements in blue are those that are well as in main part of lesson.

Statements in red are those in the decided to introduce in a lower year

Vocab taught specifically in a year group green.

Statements in italics will be covered in a knowledge they will, in any case, be



Throughout this document...

These will be recapped in the correct year group.

covered mentally in BIG MATHS as

Fractions section which we have group than statute requires.

shown at bottom of each section in

year group IF TIME ALLOWS, in the covered in the statutory year group.